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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
RAWLINGS, STEPHEN L

ART UNIT	PAPER NUMBER
1642	14

DATE MAILED: 04/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/676,340	SUBJECK ET AL.	
	Examiner	Art Unit	
	Stephen L. Rawlings, Ph.D.	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 December 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10,16-23,33,34 and 46-69* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,16-23,33,34 and 46-69* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *13* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. The amendment filed December 9, 2002 in Paper No. 12 is acknowledged and has been entered. Claims 11-15, 24-32, and 35-45 have been canceled. Claims 1-3, 9, 16, 19-22, 33, and 34 have been amended. Claims 46-69 have been added.

2. Claims 1-10, 16-23, 33-34, and 46-69 are pending in the application and are currently under prosecution.

For clarity of record, although claims 19-21 had been withdrawn, Applicants have amended claims 19-21 so that the claims read on the elected invention; accordingly, claims 19-21 have been rejoined with the claims drawn to the elected invention.

Grounds of Objection and Rejection Withdrawn

3. Unless specifically reiterated below, the grounds of objection and rejection set forth in the previous Office action mailed July 9, 2002 (Paper No. 10) are withdrawn.

For clarity of record, the rejection of claim 16 under 35 USC § 112, second paragraph has been withdrawn in view of Applicants' remark that an artisan of ordinary skill would readily understand that an immunogenic polypeptide associated with cancer is "a polypeptide that elicits an immune response to a cancer antigen" (Paper No. 12, page 9, paragraph 2).

Claim Rejections - 35 USC § 112

4. Claim 7 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claim is drawn to a pharmaceutical composition comprising a polypeptide that is selected from the group consisting of the members of the hsp70, hsp90, grp78, and grp94 stress family proteins. However, the specification fails to provide an

adequate description of the genus of stress family proteins to which the claim refers to meet the written description requirement set forth under 35 USC §112, first paragraph.

MPEP § 2163.02 states, "[a]n objective standard for determining compliance with the written description requirement is, 'does the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed' ". The courts have decided:

> The purpose of the "written description" requirement is broader than to merely explain how to "make and use"; the applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the "written description" inquiry, *whatever is now claimed*.

See *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Federal Circuit, 1991). Furthermore, the written description provision of 35 USC § 112 is severable from its enablement provision; and adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it. See *Fiers v. Revel*, 25 USPQ2d 1601, 1606 (CAFC 1993) and *Amgen Inc. V. Chugai Pharmaceutical Co. Ltd.,* 18 USPQ2d 1016.

The specification would not reasonably convey to the skilled artisan that Applicants had possession of the claimed invention at the time the application was filed because the specification fails to adequately describe the prototypal members of the families of stress proteins to which the claim refers, particularly since the specification fails to describe the source of each of the prototypal members of families of stress proteins. As such a representative member of each family of stress protein has not been disclosed. *Arguendo*, even if it were clear that that the representative member of the hsp70 stress family of proteins, for example, is regarded as human hsp70, the description of human hsp70 would be inadequate to describe the genus, as a whole, because the specification fails to disclose how human hsp70 would be regarded as representative of the genus. For example, the requisite degree to which other members of genus must would need be related to human hsp70 is not disclosed; moreover, no structural and function correlation has been disclosed that defines a common structure

and function that is shared by at least a substantial number of the members of the hsp70 stress protein family.

The Guidelines for Examination of Patent Applications Under the 35 U.S.C. 112, paragraph 1, ``Written Description'' Requirement (66 FR 1099-1111, January 5, 2001) state, "[p]ossession may be shown in a variety of ways including description of an actual reduction to practice, or by showing the invention was 'ready for patenting' such as by disclosure of drawings or structural chemical formulas that show that the invention was complete, or by describing distinguishing identifying characteristics sufficient to show that the applicant was in possession of the claimed invention" (*Id.* at 1104). Moreover, because the claims encompass a genus of variant species, an adequate written description of the claimed invention must include sufficient description of at least a representative number of species by actual reduction to practice, reduction to drawings, or by disclosure of relevant, identifying characteristics sufficient to show that Applicant was in possession of the claimed genus. However, factual evidence of an actual reduction to practice has not been disclosed by Applicant in the specification; nor has Applicant shown the invention was "ready for patenting" by disclosure of drawings or structural chemical formulas that show that the invention was complete; nor has Applicant described distinguishing identifying characteristics sufficient to show that Applicant were in possession of the claimed invention at the time the application was filed.

Skolnick, et al (*Trends in Biotechnology* **18**: 34-39, 2000) disclose that the skilled artisan is well aware that assigning functional activities for any particular protein or protein family based upon sequence homology is inaccurate, in part because of the multifunctional nature of proteins (see, e.g., the abstract; and page 34, *Sequence-based approaches to function prediction*). Even in situations where there is some confidence of a similar overall structure between two proteins, only experimental research can confirm the artisan's best guess as to the function of the structurally related protein (see, in particular, the abstract and Box 2). Thus, one skilled in the art would not accept the assertion, which is based only upon an observed similarity in amino acid sequence, that a variant of the polypeptide will retain the structure and function of another. Therefore,

as evidenced by the teachings of Skolnick, et al, the art is unpredictable; even given a requisite degree of similarity to a representative member of a genus of polypeptides, one skilled in the art cannot predict whether a particular polypeptide will have the same structure and function, or should be regarded as a member of the genus.

However, in this instance, the requisite degree of relatedness to a prototypal member of the families of polypeptides has not been disclosed, and the members of the families of polypeptides might vary widely. The *Guidelines* state, "[f]or inventions in an unpredictable art, adequate written description of a genus which embraces widely variant species *cannot* be achieved by disclosing only one species within the genus" (Id. at 1106); accordingly, it follows that an adequate written description of a genus cannot be achieved in the absence of a disclosure of at least one species within the genus.

5. Claims 16, 19, 20, 33, 34, 65, and 66 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

A. Claim 16 recites the limitation "wherein the immunogenic polypeptide comprises a cancer antigen". However, there does not appear to be proper and sufficient antecedent basis in the specification to support the recitation of this limitation in the claims. Accordingly, the recitation appears to introduce new matter and thereby violates the violates the written description requirement set forth under 35 USC § 112, first paragraph. Applicants have contended that the language of the original claim provides the necessary support, but the Examiner disagrees. The specification appears to support recitation of a limitation requiring the immunogenic polypeptide to comprise a her-2/neu peptide only, but not a limitation requiring the polypeptide to comprise any cancer antigen.

B. Claims 19, 20, 65, and 66 recite limitations requiring the her-2/neu peptide to be derived from the extracellular or transmembrane domains of her-2/neu, but there does not appear to be proper and sufficient antecedent basis in the specification to

support the recitation of these limitations in the claims. The specification appears to support recitation of a limitation requiring immunogenic polypeptide to be "p369" or "p546", but not a limitation requiring the polypeptide to be any peptide derived from the extracellular or transmembrane domains of her-2/neu. Accordingly, the recitation of the limitations in the present claims appears to introduce new matter and thereby violates the violates the written description requirement set forth under 35 USC § 112, first paragraph.

C. Claims 33 and 34 recite a limitation requiring the effective amount of the composition to be effective to induce an antitumor immune response in the subject. However, it does not appear that there is sufficient and proper antecedent basis in the specification to support the recitation of this limitation in the claims. Accordingly, the recitation appears to introduce new matter and thereby violates the violates the written description requirement set forth under 35 USC § 112, first paragraph. Applicants may resolve this issue by specifically pointing to disclosures in the specification that are believed to provide the necessary explicit, expressive, or intrinsic support; otherwise, it is noted that on page 5, in line 3, the specification would appear to support the recitation of a limitation requiring the effective amount of the composition to be effective to produce T cells against a tumor cell.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 7, 21, 46-57, and 67 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards.

A. Claim 7 is indefinite for the reason set forth in the preceding Office action mailed July 9, 2002 (Paper No. 10). Specifically, claim 7 is vague and indefinite because claim 7 recites the term "members of the hsp70, hsp90, grp78 and grp94 stress family protein families". Recitation of the term renders the claim vague and indefinite because it is unclear to which proteins the claim refers, as it is unclear which

proteins are members of the hsp70, hsp90, grp78, and grp94 families. Furthermore, presently the claim would encompass any member of the stress protein families that has yet to be discovered or categorized as such, and Applicants' could not have contemplated the use of such proteins, besides which have not been adequately described in the specification. Accordingly, one of ordinary skill in the art would not be reasonably apprised of the metes and bounds of the invention.

Applicants have traversed this ground of rejection arguing that the metes and bounds of the invention would be clear to the skilled artisan. Applicants' arguments have been carefully considered but not found persuasive. The metes and bound of the invention could be ascertained because the specification does not set forth a standard for ascertaining the requisite degree to which a polypeptide must be identical to the prototypal family member, e.g., hsp70, to be regarded as a member of the family of hsp70 proteins. Moreover, as the amino acid sequence of hsp70 varies from species to species, depending upon the species from which the prototypal member is isolated, the degree to which a given polypeptide is related to the prototypal member will vary, and accordingly, the metes and bounds of the invention could not be determined with certainty. As noted in the rejection of the claim under 35 USC § 112, first paragraph, Skolnick, et al teach that even in situations where there is some confidence of a similar overall structure between two proteins, only experimental research can confirm the artisan's best guess as to the function of the structurally related protein; since the claim does not recite a limitation requiring the members of the stress protein families to be related at least to a requisite degree and since the claim does not specifically identify the members of the families of proteins to which a comparison is to be made, the skilled artisan could not determine the metes and bounds of the invention.

B. Claims 21 and 67 are indefinite because the claims recite the limitation "the cancer". There does not appear to be antecedent basis in the claims from which claims 21 and 67 depend; therefore, the metes and bounds of the invention could not be determined.

C. Claims 46-57 are indefinite because the claims are drawn to the method of claim 32. Since claim 32 has been canceled, the metes and bounds of the invention could not be determined.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

9. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

10. Claims 1, 2, 4-10, 16-18, 23, 33, and 34 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 5,891,432-A for the reason set forth in the preceding Office action mailed July 9, 2002.

Applicants have traversed this ground of rejection arguing that the prior art does not anticipate the claimed invention because the prior art does not teach that hsp110 shares features with hsp60, hsp70, shp90, and hsp65, or that hsp110 would be useful in a vaccine. Applicants' arguments have been carefully considered but not found persuasive for the reasons stated in the preceding Office action; the prior art teaches a pharmaceutical composition comprising a genetically engineered cell that expresses a fusion protein comprising an immunomodulatory molecule fused to a disease-associated antigen or immunogenic epitope thereof, wherein the immunomodulatory molecule can be a heat shock protein and more particularly, hsp110.

11. Claims 1-3, 5, 6, 8, 16-18, and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 5,747,332-A for the reason set forth in the preceding Office action mailed July 9, 2002.

Applicants have traversed this ground of rejection arguing that the prior art does not anticipate the claimed invention because the prior art does not teach that hsp110 is immunogenic. Applicants' arguments have been carefully considered but not found persuasive for the reasons stated in the preceding Office action; the prior art teaches a pharmaceutical composition that can be administered to a subject in an effective amount to treat or prevent cancer in the subject, wherein said composition comprises heat shock protein complexes comprising hsp110 associated by a non-covalent interaction with an immunogenic polypeptide. The composition of the prior art is deemed the same as the composition of the instant claims, absent a showing of any differences. The Office, however, does not have the facilities for examining and comparing Applicant's product with the product of the prior art in order to establish that the product of the prior art does not possess the same material, structural, and functional characteristics as the claimed composition. In the absence of evidence to the contrary, the burden is upon the applicant to prove that the claimed composition is different than those taught by the prior art. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and *Ex parte Gray*, 10 USPQ 2d 1922 1923 (PTO Board of Patent Appeals and Interferences).

12. Claims 1-3, 5, 6, 8, and 16-18 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,066,716-A for the reason set forth in the preceding Office action mailed July 9, 2002.

Applicants have traversed this ground of rejection arguing that the prior art does not anticipate the claimed invention because the prior art does not teach that hsp110 is immunogenic. Applicants' arguments have been carefully considered but not found persuasive for the reasons stated in the preceding Office action; the prior art teaches a pharmaceutical composition that can be administered to a subject in an effective amount to treat or prevent cancer in the subject, wherein said composition comprises

heat shock protein complexes comprising hsp110 associated by a non-covalent interaction with an immunogenic polypeptide. The composition of the prior art is deemed the same as the composition of the instant claims, absent a showing of any differences. However, again, the Office does not have the facilities for examining and comparing Applicant's product with the product of the prior art in order to establish that the product of the prior art does not possess the same material, structural, and functional characteristics as the claimed composition. In the absence of evidence to the contrary, the burden is upon the applicant to prove that the claimed composition is different than those taught by the prior art. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and *Ex parte Gray*, 10 USPQ 2d 1922 1923 (PTO Board of Patent Appeals and Interferences).

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

14. Claims 1-10, 16-18, 22, 23, 33, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Nos. 5,747,332-A, 5,981,706-A, and 6,066,716-A in view of Disis, et al (*Clinical Cancer Research* **5**: 1289-1297, 1999), in further view of US Patent No. 6,322,790-B1, and in still further view of US Patent Nos. 5,891,432-A, 6,331,299-B1, and Lee-Yoon, et al (*Journal of Biological Chemistry* **270**: 15725-15733, 1995) for the reason set forth in the preceding Office action mailed July 9, 2002.

Applicants have traversed this ground of rejection arguing that the prior art does not render the claimed invention obvious under 35 USC § 103(a) because the prior art does not teach that hsp110 is immunogenic or otherwise useful in the inhibition of cancer. In addition, Applicants have argued that the prior art does not render the

claimed invention obvious under 35 USC § 103(a) because hsp110 does not bind ATP or ADP. Furthermore, Applicants have argued that Disis, et al do not teach or suggest combining an immunogenic her-2/neu peptide with hsp110, and US Patent Nos. 6,322,790-A and 6,331,299-A and Lee-Yoon, et al do not teach or suggest the use of hsp110 to inhibit cancer or elicit an immune response.

Applicants' arguments have been carefully considered but not found persuasive. In response to Applicants' arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). In response to Applicants' apparent argument that there is no suggestion to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as set forth in the previous Office action, in view of the teachings of Disis, et al, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the methods and apparatus set forth in US Patent Nos. '332, '706, and '716 to produce and use a pharmaceutical composition comprising a heat shock protein complex comprising hsp110 associated with an immunogenic peptide derived from the intracellular domain of HER-2/Neu, because Disis, et al teach that immunogenic peptides derived from the intracellular domain of HER-2/Neu effectively stimulate an antitumor immune response in individuals immunized with a vaccine composed of the peptides. In further view of the teachings of US Patent '790, it would have been obvious to have produced and used a pharmaceutical composition comprising two or more heat shock protein complexes, wherein the heat shock protein complexes comprise hsp110, hsp70, or other members of the hsp70, hsp90, grp78, or grp94 stress protein families, because '790 teaches that composition comprising a combination of two or more heat

shock protein complexes can effectively elicit an antitumor immune response in an individual immunized with such a composition. In still further view of the teachings set forth in US Patent Nos. '432 and '299, and Lee-Yoon, et al, it would have been obvious to have produced an pharmaceutical composition comprising a nucleic acid molecule comprising a polynucleotide sequence encoding a fusion protein comprising hsp110 and an immunogenic peptide derived from the intracellular domain of HER-2/Neu, because '432 and '299 teach that pharmaceutical compositions comprising recombinant cells expressing enforced levels of heat shock proteins or fusion proteins comprising heat shock proteins and immunological polypeptides can effectively elicit antitumor immune response in individuals immunized with such compositions. One of ordinary skill in the art, at the time the invention was made, would have been motivated to have done so, because there had been a long-felt need for a more effective method for treating and preventing cancers, such as breast and ovarian cancer, that over-express the HER-2/Neu oncogenic protein.

Finally, in response to Applicants' argument that hsp110 does bind ATP or ADP and could therefore not be used in the manner taught in '706, as it appears that Applicants have argued that the method taught in '706 could not be used to produce a heat shock protein comprising hsp110, the method claimed in the patent is presumed to be enabled under 35 USC § 112, first paragraph. Claim 11 of the patent is specifically drawn to a method for synthesizing a heat shock protein complex, wherein the heat shock protein is hsp110.

Conclusion

15. No claims are allowed.

16. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen L. Rawlings, Ph.D. whose telephone number is (703) 305-3008. The examiner can normally be reached on Monday-Friday, 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony C. Caputa, Ph.D. can be reached on (703) 308-3995. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-4242 for regular communications and (703) 308-4242 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Stephen L. Rawlings, Ph.D.
Examiner
Art Unit 1642

ANTHONY C. CAPUTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

slr
April 7, 2003